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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------|
| 10/655,169 | 09/04/2003 | Armin Konrad | 99P5552DIV2 | 6792 |
| 24252 7590 02/22/2007 OSRAM SYLVANIA INC 100 ENDICOTT STREET DANVERS, MA 01923 | | | EXAMINER BHAT, NINA NMN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1764 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/22/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/655,169 | KONRAD ET AL. | |
| | Examiner | Art Unit | |
| | N. Bhat | 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9-4-2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant is requested to update the continuity data in the specification on Page 1, line 1.
2. Claims 27-32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: elements which produce oxidic nanocrystals. Applicant is reminded when interpreting apparatus claims, the preamble of the claim rarely carries any patentable weight, when reading claim 27, the elements of the apparatus or system include one or more vaporizers, connected to a gas source, a heated reactor, an adsorption trap and vacuum pump. The apparatus can be used for any type of vaporization reaction or broadly reads on chemical vapor deposition which can make a number of products and not limited only to oxidic nanocrystals or nanosized particulate material. Suitable correction is required. Applicant is also suggested to draft the claims with element plus function language when claiming the invention.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helble et al.

Helble et al. teach the invention substantially as claimed. Helble teach a method and apparatus for producing nanoscale ceramic powders. The apparatus as taught and described by Helble can produce nanophase crystalline magnesium oxide particles by providing a slurry of carbon particles and magnesium nitrate which is then heated to vaporize the water to produce carbon particles containing adsorbed magnesium which is then further treated in a reactor which was heated to 1500 K, which thermally decomposes the carbon leaving nanocrystalline magnesium oxide. [Note Column 8, lines 38 -65]. Helble et al. further teach that a spray or atomizing deposition in a flow reactor which includes, vaporization, drying and carbonization which produce nanometer scale ceramic oxide particles.

However, Helble et al. does not teach using an adsorption trap as claimed by applicant.

Helble et al. teach apparatus which are capable of making oxidic nanocrystals. The apparatus include means which vaporize, a heated reactor, and means for

collecting the formed nanocrystalline particles. The apparatus as described does not preclude equipment such as adsorption traps or cold traps which are conventionally used in vacuum environments. Chemical Vapor deposition equipment used in making nanocrystalline metal oxide particles has been taught by the prior art and the equipment can be operated at atmospheric or in vacuum conditions and to include routine equipment such as adsorption traps would have been obvious to one having skill in the art. Further, to include elements which purify a nanoscale particulate material or the concept of reducing impurities has been taught by Helble et al. in Column 14, line 26, and to include devices such using an adsorption column or trap would have been obvious to one having ordinary skill in the art at the time the invention was made.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inoue et al. teach ultra fine spherical particles of metal oxide production and preparation. Li et al. teach a chemical vapor deposition apparatus which includes a vaporizer and heated reactor which is capable of depositing a layer of ferroelectric material on to a substrate. Roeder et al. teach a multiple vaporizer chemical vapor deposition reactor.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



N. Bhat
Primary Examiner
Art Unit 1764